WM-FX301

SERVICE MANUAL

US Model
Canadian Model
E Model

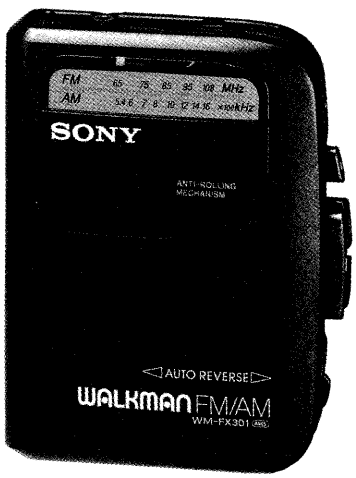

Photo: US model

Model Name Using Similar Mechanism	NEW
Tape Transport Mechanism Type	MF-WMFX305-43

SPECIFICATIONS

Radio Frequency

US, Canadian model
FM: 87.6 – 108 MHz
AM: 530 – 1,710 kHz
E model
FM: 87.6 – 107.9 MHz
AM: 531 – 1,602 kHz

Power Requirements

3 V DC Batteries AA (R6) x 2
External DC 3 V power sources

Battery Life

(approximate hours when using the batteries specified below)

Battery	Playback	Radio
Sony Alkaline AM3 (N)	7.5 hours	24 hours
Sony SUM-3 (NS)	4 hours	15 hours

Dimensions

93.9 x 118.5 x 35.9mm (w/h/d)
(3 ¾ x 4 ¾ x 1 7/16 in.) incl. projecting parts

Mass 205g (7.3 oz) incl. batteries

Supplied Accessories

- Stereo headphones (1)
- Belt clip (1)

Your dealer may not handle some of the above listed accessories. Please ask the dealer for detailed information.

Design and specifications are subject to change without notice.

Note

Use only the recommended AC-E30L AC power adaptor (not supplied). Do not use any other AC power adaptor.

Polarity of the plug

使用時は添付資料も参照のこと
Refer to the additional documents.

RADIO CASSETTE PLAYER

SONY®

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SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

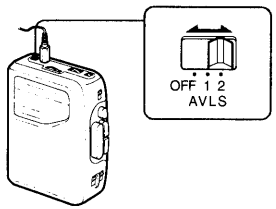
LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

Featuring

AVLS (Automatic Volume Limiter System)

The AVLS selector allows you to limit the maximum volume of your Walkman personal stereo without degrading the sound quality.

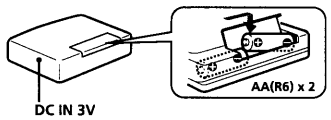
- When the AVLS selector is set to either position 1 or 2, (around 95dB and 85dB, respectively) the volume will be kept at a moderate level without the degradation of the sound quality, even if you attempt to turn the volume up higher.
- When the AVLS selector is set to either position 1 or 2, the playback sound may be distorted or unstable according to the music (especially the bass boosted part). If this happens, turn down the volume.
- When the AVLS selector is turned off, you will be able to enjoy the full volume capability of your Walkman personal stereo.



Getting Started

Using with Batteries

Insert two AA (R6) batteries in correct polarity.



Notes

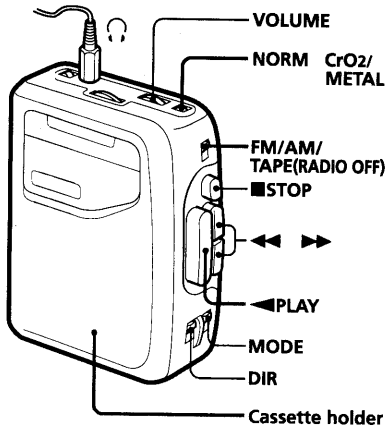
- When you are not going to use your Walkman for a long time, remove the batteries to prevent damage from battery leakage and corrosion.
- When the sound becomes unstable or cannot be heard, replace the old batteries with new ones.

Using External Power Sources

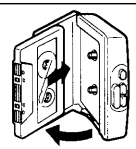
You can connect the following external power sources through the DC IN 3 V jack located on the bottom. (When you plug a cord into the DC IN 3 V jack, the internal batteries are automatically bypassed.)

- House current using an AC-E30L AC power adaptor
- 12 V car battery using a DCC-E130L car battery cord

Playing Cassettes

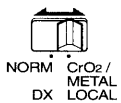


1 **Insert a cassette.**



2 **Set the FM/AM/TAPE selector to TAPE.**

3 **Select NORM or CrO2/ METAL mode to match the tape type.**



4 **Press PLAY.**

Operating the Cassette Player

To wind the tape	Press ◀◀ or ▶▶.
To change sides	Set the DIR switch.
To play both sides once	Set MODE to ⮌.
To play both sides repeatedly	Set MODE to ⮌.
To adjust the volume	Set the VOLUME control.
To stop	Press ■ STOP.

Note on the DIR switch

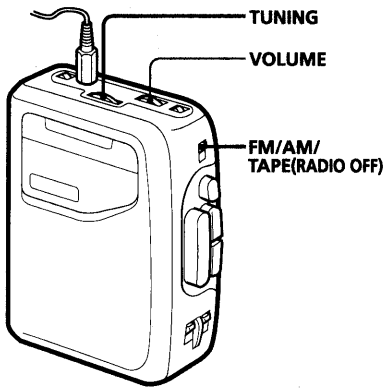
When the MODE switch is set to ⮌, the DIR switch turns automatically at the end of a cassette. If the switch does not turn automatically, check to make sure the MODE is properly set (see above). If the DIR switch still does not turn, the batteries are weak. Replace them with a new set of batteries.

Notes on playing cassettes

- Do not use cassettes longer than 90 minutes except for long continuous playback.
- If the tape is playing but no sound comes out, the batteries may be weak. Replace all batteries with new ones.
- If your Walkman has not been used for a long time, run the Walkman for a few minutes before inserting a cassette.
- Do not wind the headphones cord around the Walkman. The buttons may be kept pressed, causing unnecessary battery usage.

This section is extracted from instruction manual.

Listening to the Radio



1 **Set the FM/AM/TAPE selector to AM or FM.**

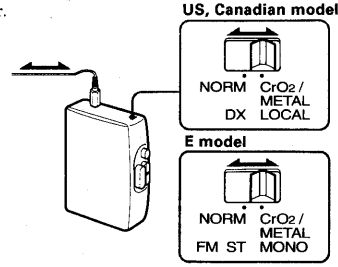
2 **Tune in the desired station.**

To adjust the volume	Set the VOLUME control.
To turn off	Set the FM/AM/TAPE selector to TAPE (RADIO OFF).

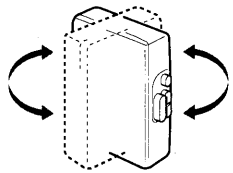
Note
If you have inserted a cassette with a metallic shell or label and radio reception interference occurs, remove the cassette.

Improving Radio Reception

Improving FM reception
Extend the headphones cord or adjust the DX/LOCAL selector.



Improving AM reception
Rotate the Walkman.



Precautions

Notes on headphones

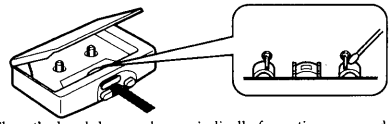
Concerning Road Safety
Do not use headphones while driving, cycling, or operating any motorized vehicle. It may create a traffic hazard and is illegal in many areas. It can also be potentially dangerous to play your headsets at high volume while walking, especially at pedestrian crossings. You should exercise extreme caution or discontinue use in potentially hazardous situations.

Preventing hearing damage
Do not use headphones at high volume. Hearing experts advise against continuous, loud and extended play. If you experience a ringing in your ears, reduce volume or discontinue use.

Caring for others
Keep the volume at a moderate level. This will allow you to hear outside sounds and to be considerate to the people around you.

Taking Care of Your Walkman

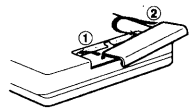
- Do not expose the Walkman to extreme temperatures, direct sunlight, moisture, sand, dust or mechanical shock. Never leave the Walkman in a car parked in the sun.
- Prolonged use may contaminate the tape head. If sound drop-out or excessive noise occurs, clean the head and tape path with alcohol.



- Clean the headphones plug periodically for optimum sound.
- Do not use alcohol, benzine or thinner to clean the case.

About the battery compartment lid

If the battery compartment lid is detached by an accidental drop, excessive force, etc., attach it as illustrated in the numbered order.



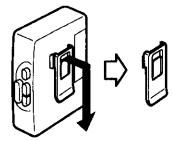
If you have any question or problem concerning your Walkman, please consult your nearest Sony dealer.

Using the Belt Clip

With the supplied belt clip, you can wear your Walkman on a belt for convenient use.

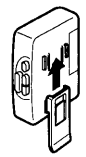
Removing the belt clip

Lift the tab slightly and push down with your finger to remove the belt clip from the Walkman.



Attaching the belt clip

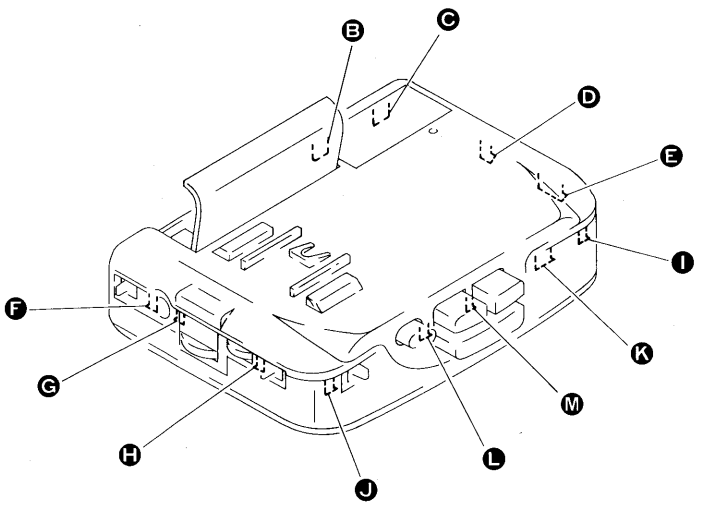
Align the belt clip with the grooves on the back of the Walkman and slide the belt clip up until you hear a click, to firmly attach it to the Walkman.

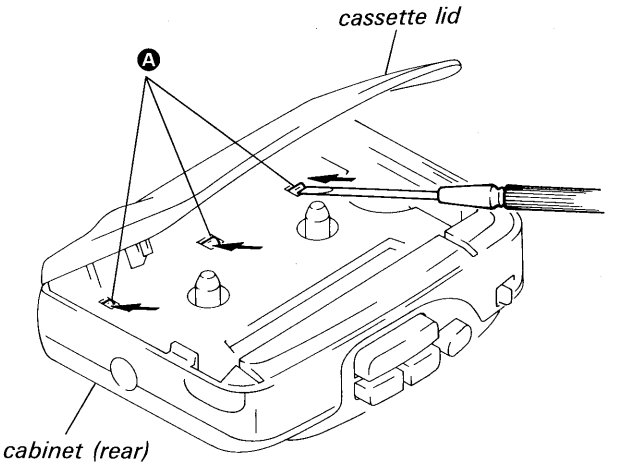


SECTION 2
DISASSEMBLY

NOTE: Follow the disassembly procedure in the numerical order given.

2-1. CABINET (REAR)



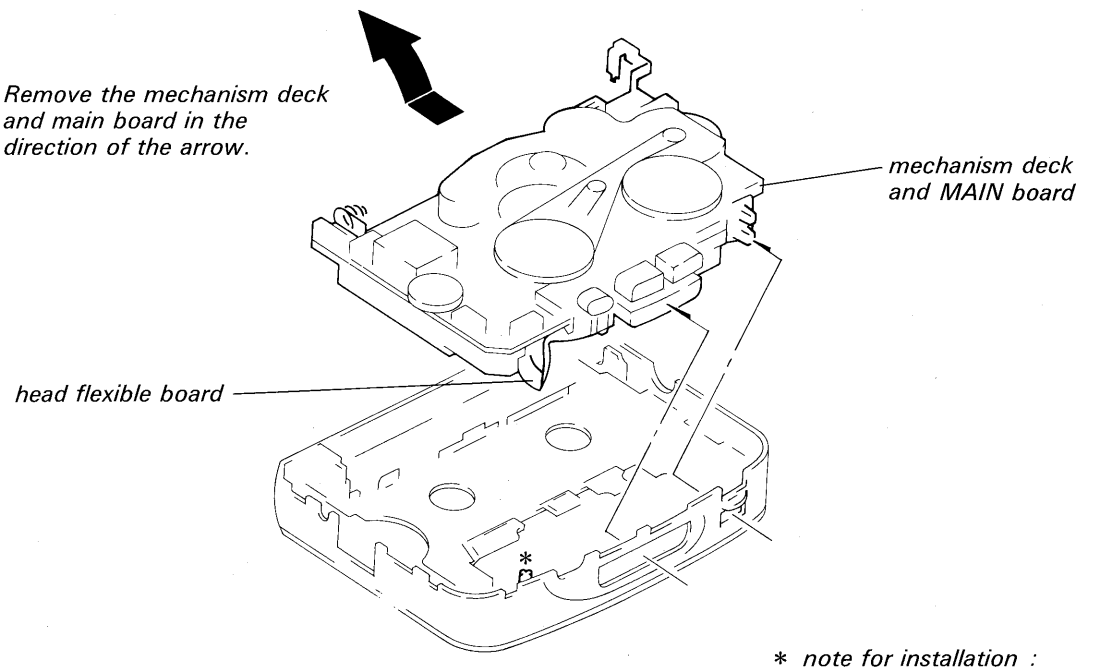


❶ *Insert the precision screw driver (1.4mm flat-blade) in to the slit at claw Ⓐ and release the claw.*

❷ *Remove the cabinet (rear). (Release all claw Ⓑ to Ⓜ in alphabetical order.)*

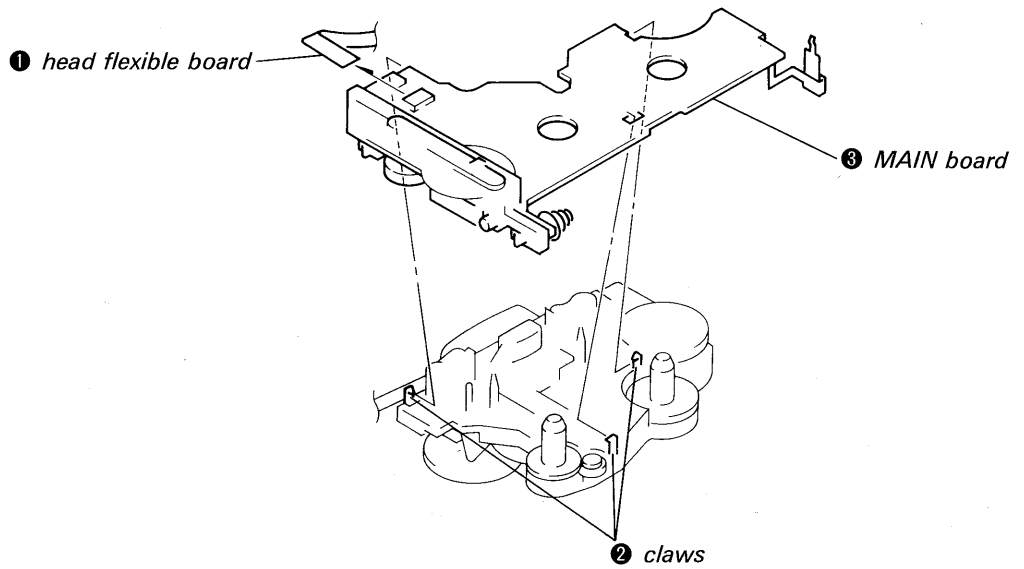
2-2. MECHANISM DECK AND MAIN BOARD

❶ *Remove the mechanism deck and main board in the direction of the arrow.*

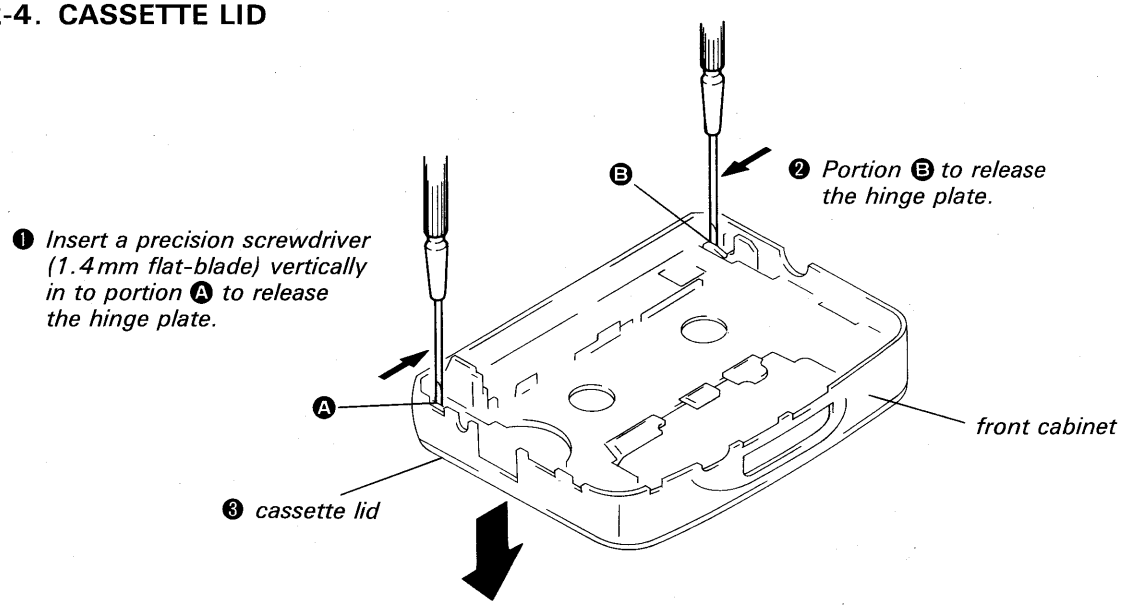


* *note for installation :*
Make sure to put the head flexible board to ditch before install the mechanism deck and MAIN board.

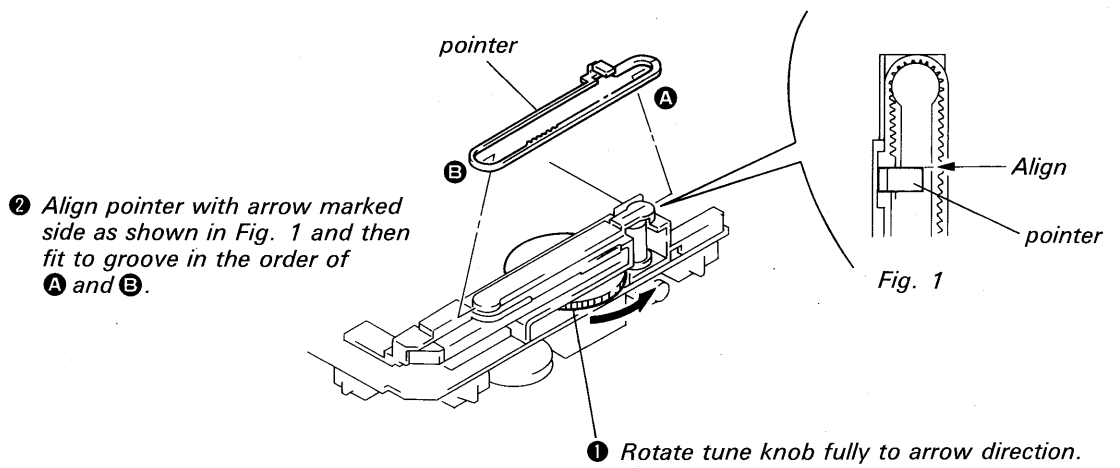
2-3. MAIN BOARD



2-4. CASSETTE LID


❶ Insert a precision screwdriver (1.4mm flat-blade) vertically in to portion Ⓐ to release the hinge plate.
Ⓑ
❷ Portion Ⓑ to release the hinge plate.
Ⓐ
front cabinet
❸ cassette lid

2-5. DIAL POINTER SETTING


pointer
Ⓐ
Ⓑ
❷ Align pointer with arrow marked side as shown in Fig. 1 and then fit to groove in the order of Ⓐ and Ⓑ.
Align
pointer
Fig. 1
❶ Rotate tune knob fully to arrow direction.

SECTION 3
ADJUSTMENTS

3-1. MECHANICAL ADJUSTMENTS

Precaution

1. Clean the following parts with a denatured-alcohol-moistened swab :
   playback head pinch roller
   capstan rubber belts
2. Demagnetize the playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage (2.5V) unless otherwise noted.

Torque Measurement

Mode	Torque meter	Meter reading
FWD	CQ-102C	20 - 42 g-cm (0.28 - 0.58 oz-inch)
FWD Back Tension		less than 2 g-cm (less than 0.03 oz-inch)
REV	CQ-102RC	20 - 42 g-cm (0.28 - 0.58 oz-inch)
REV Back Tension		less than 2 g-cm (less than 0.03 oz-inch)
FF, REW	CQ-201B	more than 60 g-cm (more than 0.83 oz-inch)

Tape Pulling Force Measurement

Mode	Torque meter	Meter reading
FWD	CQ-403A	more than 40g (more than 1.4 oz)
REV	CQ-403R	

3-2. ELECTRICAL ADJUSTMENTS

Precaution

- Supplied voltage : 2.5V
- Switch and control position
  SENS switch : DX
  TAPE switch : NORM
  VOLUME control : maximum
  AVLS switch : OFF

Tape section

- FUNCTION switch : TAPE

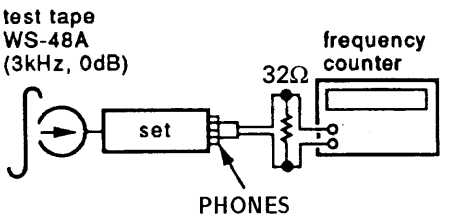
Test tape

Type	Signal	Used for
WS-48A	3kHz, 0dB	Tape Speed Adjustment

Tape speed adjustment

Tape select switch: NORM

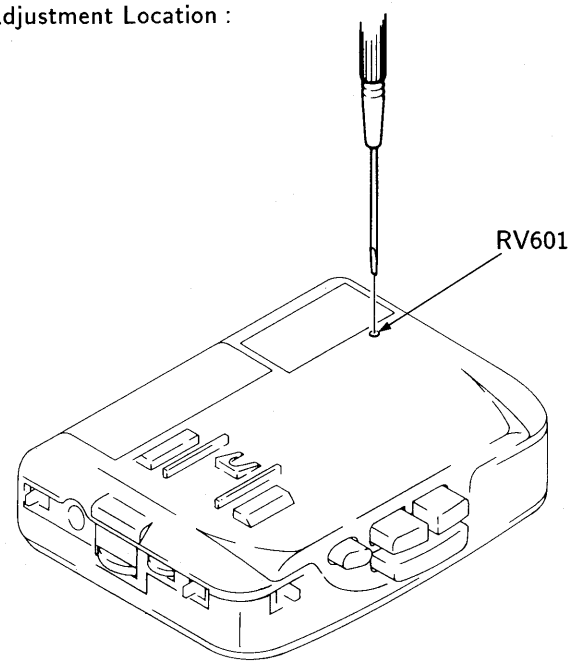
Procedure :



Play back WS-48A(tape center portion) in reverse mode.

Adjust the RV601 so that the frequency counter reads 2.970Hz ± 15Hz.

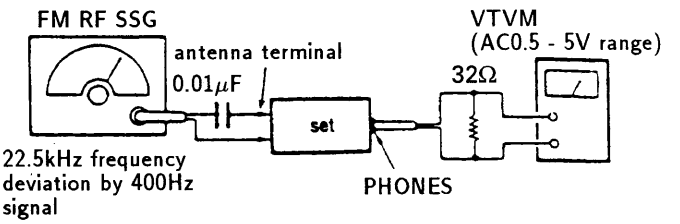
Adjustment Location :



Radio section

-FUNCTION switch : RADIO

FM section



-Repeat the procedure in each adjustment several times since L (3, 2) affects CT (3, 2) and CT (3, 2) affects L (3, 2). Both the frequency coverage and tracking adjustments should end with the final adjustment of the trimmer capacitors.

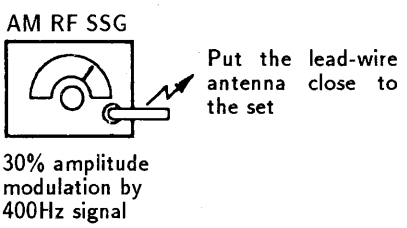
FM Frequency Coverage Adjustment

Pointer position	SG frequency	Adjustment part	Reading on VTVM
f minimum	86.5MHz	L3	maximum
f maximum	109.5MHz	CT3	

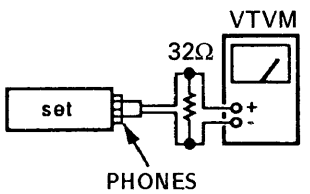
FM Tracking Adjustment

SG and set frequency	Adjustment part	Reading on VTVM
86MHz	L2	maximum
109.5MHz	CT2	

AM section



-Repeat the procedure in each adjustment several times since L (4, 1) affects CT (4, 1) and CT (4, 1) affects L (4, 1). Both the frequency coverage and tracking ajustments should end with the final adjustment of the trimmer capacitors.



AM IF Adjustment

SG and set frequency	Adjustment part	Reading on VTVM
455kHz	T1	maximum

AM Frequency Coverage Adjustment

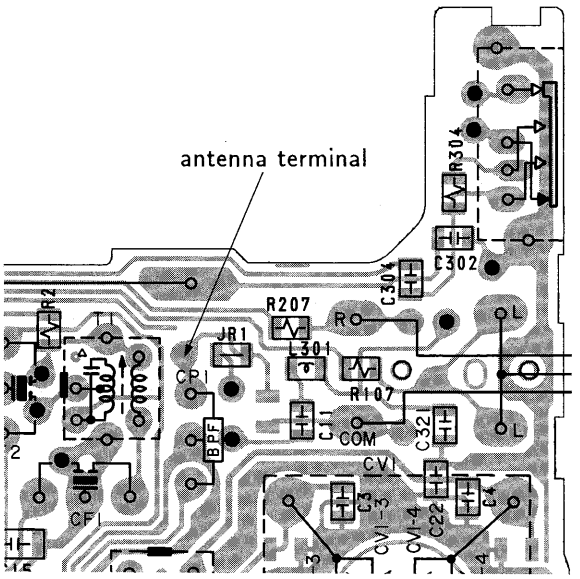
Pointer position	SG frequency	Adjustment part	Reading on VTVM
f minimum	505kHz	L4	maximum
f maximum	1,750kHz	CT4	

AM Tracking Adjustment

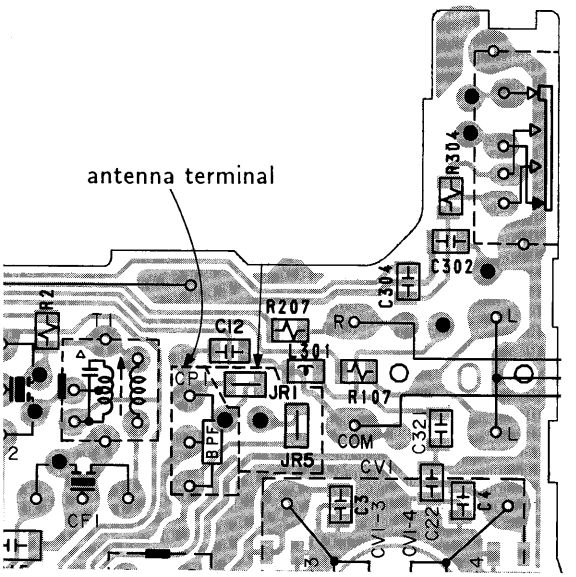
SG and set frequency	Adjustment part	Reading on VTVM
620kHz	L1	maximum
1,750kHz	CT1	

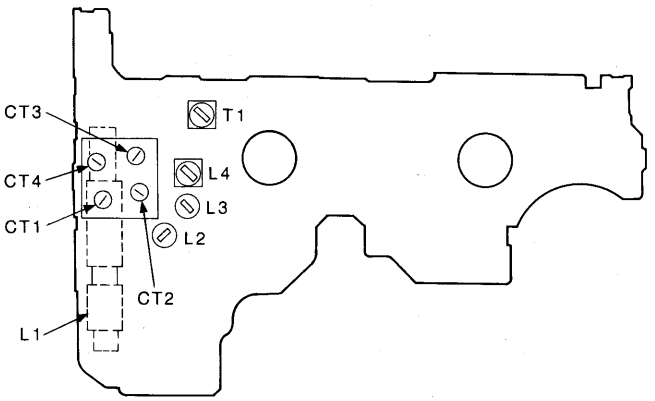
Adjustment Location : main board

— Board suffix-11 model —



— Board suffix-12 model —



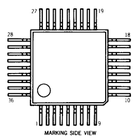


- Component Side -

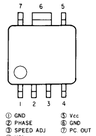
SECTION 4
DIAGRAMS

● Semiconductor Lead Layouts

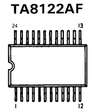
LA4582CM



MM1038BFF-T1

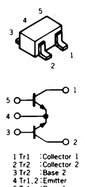


TA8122AF



2SA1162-G
RN1410

XN1215
XN1501



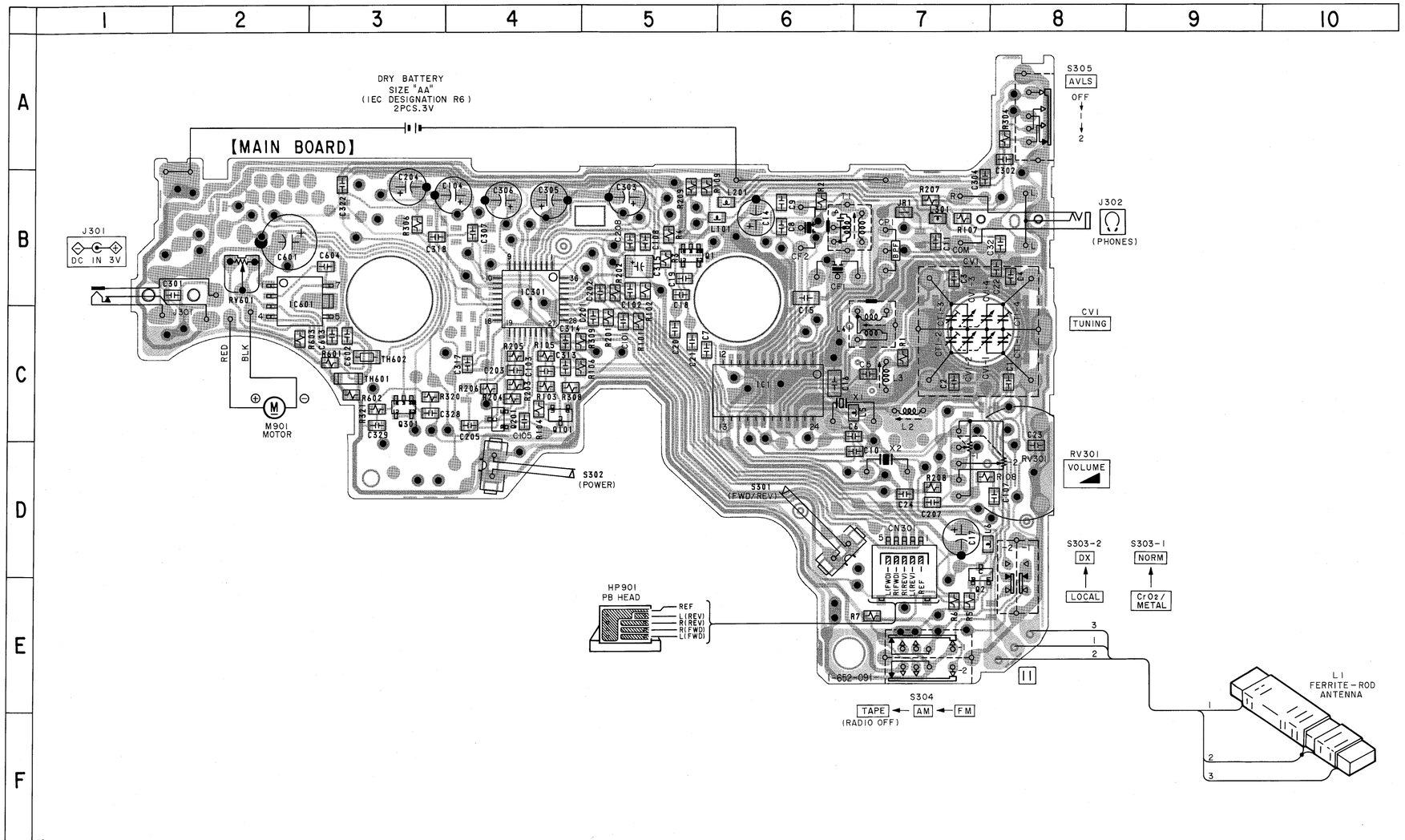
● Semiconductor Location

Ref. No.	Location
IC1	C-6
IC301	B-4
IC601	B-2
Q1	B-5
Q2	E-7
Q101	C-4
Q201	C-4
Q301	C-3

Note:

- ○——: parts extracted from the component side.
- ——: parts extracted from the conductor side.
- indicates side identified with part number.
- ●: Through hole.
- : Pattern on the side which is seen.
- ※ : Pattern of the rear side.

4-1. PRINTED WIRING BOARD (BOARD SUFFIX-11 MODEL)



4-2. PRINTED WIRING BOARD (BOARD SUFFIX-12 MODEL)

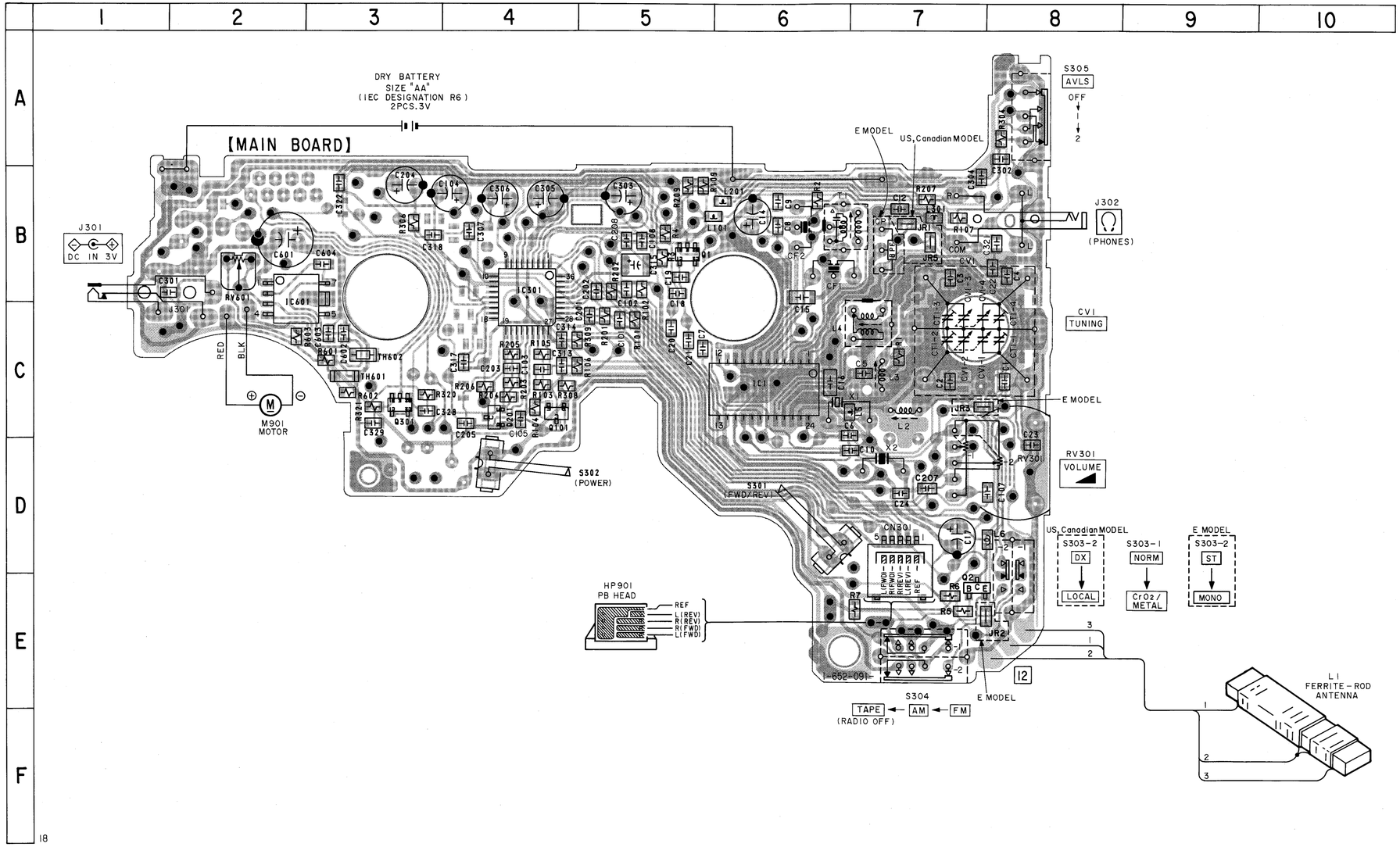
● See page 11 for Semiconductor Lead Layouts.

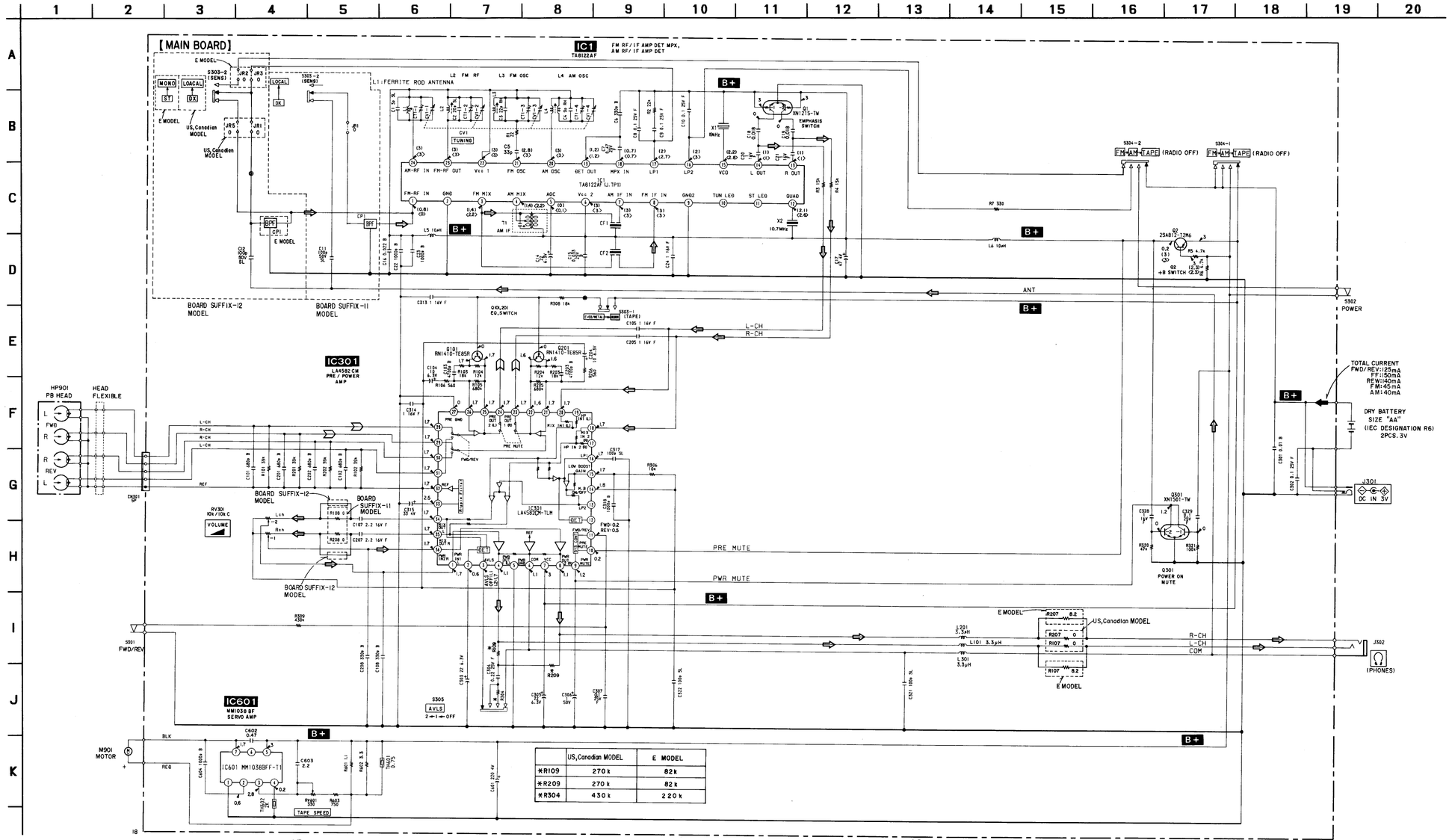
● **Semiconductor Location**

Ref. No.	Location
IC1	C-6
IC301	B-4
IC601	B-2
Q1	B-5
Q2	E-7
Q101	C-4
Q201	C-4
Q301	C-3

Note:

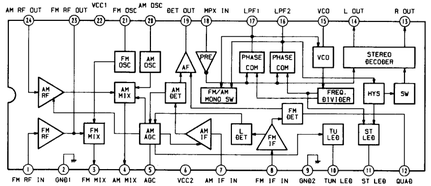
- ○—— : parts extracted from the component side.
- —— : parts extracted from the conductor side.
- indicates side identified with part number.
- ● : Through hole.
- : Pattern on the side which is seen.
- : Pattern of the rear side.



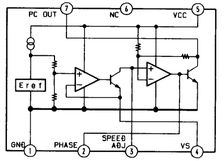


● IC Block Diagrams

IC1 TA8122AF



IC601 MM1038BFF-T1



Note:

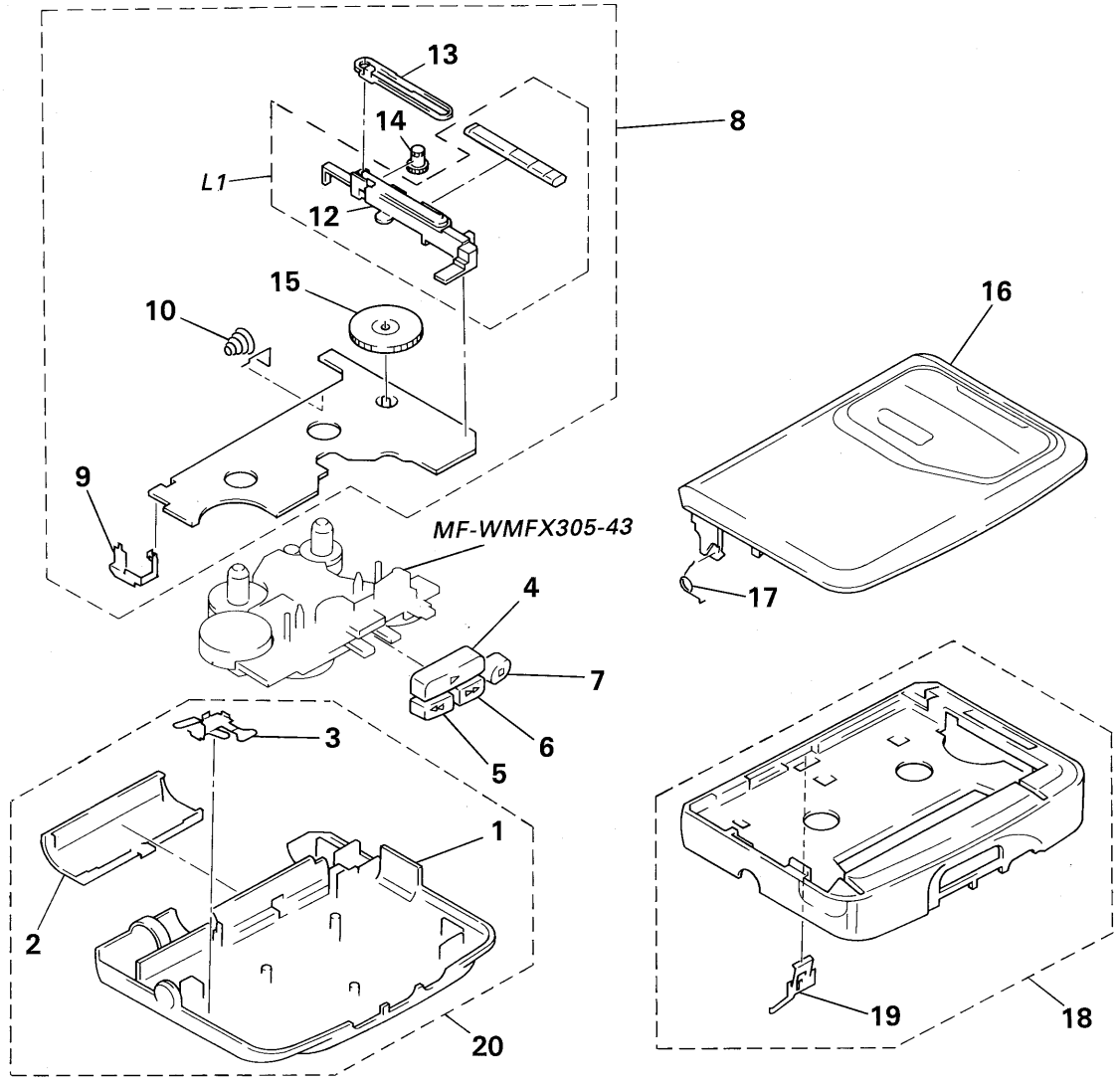
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- B+ : B+ Line
- ▭ : adjustment for repair.
- Total current is measured with no cassette installed.
- Power voltage is dc 3 V and fed with regulated dc power supply from external power voltage jack.
- Voltage are dc with respect to ground under detuned conditions.
  no mark : TAPE PB
  ( ) : FM
  < > : AM
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM ⇨ : PB

SECTION 5
EXPLODED VIEWS

NOTE:

- –XX, –X mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE)...(RED)
  ↑ ↑
  Parts color Cabinet's color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

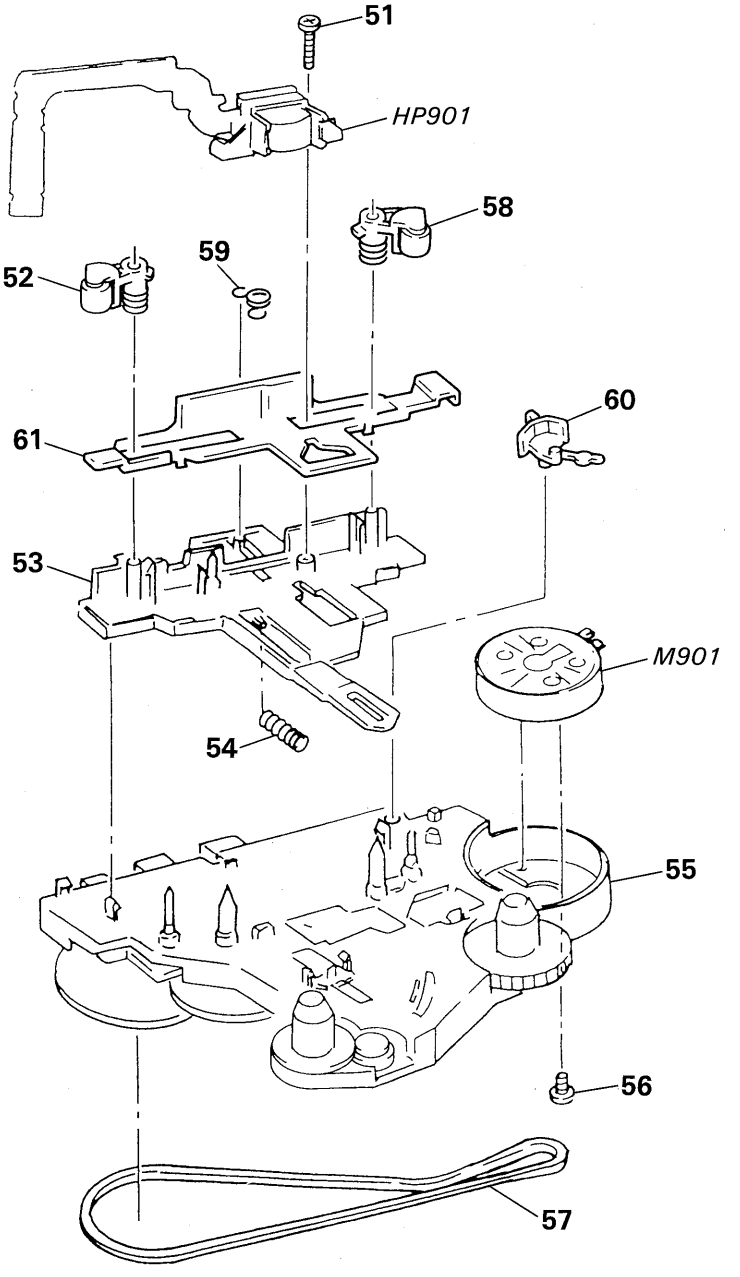
5-1. MAIN SECTION



Ref. No.	Part No.	Description	Remark
1	3-910-933-01	CABINET (REAR) (CF-R)	
2	3-910-922-01	LID, BATT	
3	3-910-896-01	GROUND, MOTOR	
4	3-910-918-01	BUTTON (PLAY)	
5	3-910-917-01	BUTTON (REW)	
6	3-910-916-01	BUTTON (FF)	
7	3-910-915-01	BUTTON (STOP)	
8	A-3016-562-A	MAIN BOARD, COMPLETE (US, Canadian)	
8	A-3016-627-A	MAIN BOARD, COMPLETE (E)	
9	3-910-894-01	TERMINAL (+), BATTEREY	
10	3-910-909-01	TERMINAL (-), BATTERY	
* 12	3-910-925-01	CHASSIS, ANTENNA	

Ref. No.	Part No.	Description	Remark
13	3-910-911-01	POINTER	
14	3-910-897-01	GEAR (TUNE)	
15	3-910-923-01	KNOB (TUNE)	
16	X-3368-122-1	HOLDER (CF) ASSY, CASSETTE (US, Canadian)	
16	X-3369-129-1	HOLDER (CF-U) ASSY, CASSETTE (E)	
17	3-910-924-01	SPRING, TORSION	
18	X-3368-278-1	CABINET (FRONT) (CF-R)SUB ASSY (US, Canadian)	
18	X-3368-279-1	CABINET (FRONT) (CF-R)SUB ASSY (E)	
19	3-364-675-01	SPRING (CASSETTE)	
20	X-3368-108-1	CABINET (REAR) (CF-R) ASSY	
LI	X-3368-118-1	ANTENNA SUB ASSY, BAR	

5-2. MECHANISM SECTION (MF-WMFX305-43)



Ref. No.	Part No.	Description	Remark
51	3-910-635-01	SCREW	
52	X-3367-902-1	ARM (N) ASSY, PINCH	
53	3-910-644-01	LEVER, PLAY	
54	3-364-328-01	SPRING, COMPRESSION	
55	X-3368-730-1	CHASSIS ASSY	
56	3-352-758-21	SCREW (M1.7), TOOTHED LOCK	
57	3-354-868-11	BELT	

Ref. No.	Part No.	Description	Remark
58	X-3367-903-1	ARM (R) ASSY, PINCH	
59	3-354-873-11	SPRING (TOGGLE)	
60	3-909-698-01	LEVER, D SELECTION	
61	3-910-643-01	ARM (NR)	
HP901	1-543-705-11	HEAD, MAGNETIC (PLAYBACK)	
M901	1-698-353-11	MOTOR, DC	

SECTION 6
ELECTRICAL PARTS LIST

MAIN

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- –XX and –X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : μ, for example:
  uA··· : μA···, uPA··· : μPA···, uPB··· : μPB···, uPC··· : μPC···, uPD··· : μPD···
- CAPACITORS
  uF : μF
- COILS
  uH : μH

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
	A-3016-562-A	MAIN BOARD, COMPLETE (US, Canadian)			
	A-3016-627-A	MAIN BOARD, COMPLETE (E)			
		**********			
		< CAPACITOR >			
C1	1-163-086-00	CERAMIC CHIP	3PF		50V
C2	1-163-100-00	CERAMIC CHIP	20PF	5%	50V
C3	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C4	1-163-092-00	CERAMIC CHIP	9PF	0.25PF	50V
C5	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C6	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C7	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C8	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C9	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C10	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C11	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
			(Board suffix -11)		
C12	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C14	1-126-153-11	ELECT	22uF	20%	6.3V
C15	1-163-078-11	CERAMIC CHIP	0.033uF	10%	25V
C16	1-163-063-00	CERAMIC CHIP	0.022uF	10%	50V
C17	1-126-154-11	ELECT	47uF	20%	6.3V
C18	1-163-024-00	CERAMIC CHIP	0.018uF	10%	50V
C19	1-163-024-00	CERAMIC CHIP	0.018uF	10%	50V
C20	1-164-346-11	CERAMIC CHIP	1uF		16V
C21	1-164-346-11	CERAMIC CHIP	1uF		16V
C22	1-163-009-11	CERAMIC CHIP	0.001uF	10%	25V
C23	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C24	1-164-346-11	CERAMIC CHIP	1uF		16V
C101	1-163-007-11	CERAMIC CHIP	680PF	10%	50V
C102	1-163-007-11	CERAMIC CHIP	680PF	10%	50V
C103	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C104	1-126-157-11	ELECT	10uF	20%	16V
C105	1-164-346-11	CERAMIC CHIP	1uF		16V
C107	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C108	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C201	1-163-007-11	CERAMIC CHIP	680PF	10%	50V
C202	1-163-007-11	CERAMIC CHIP	680PF	10%	50V
C203	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C204	1-126-157-11	ELECT	10uF	20%	16V
C205	1-164-346-11	CERAMIC CHIP	1uF		16V
C207	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C208	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C301	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C302	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C303	1-126-153-11	ELECT	22uF	20%	6.3V
C304	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C305	1-126-153-11	ELECT	22uF	20%	6.3V
C306	1-126-160-11	ELECT	1uF	20%	50V
C307	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C313	1-164-346-11	CERAMIC CHIP	1uF		16V
C314	1-164-346-11	CERAMIC CHIP	1uF		16V
C315	1-135-318-11	TANTAL. CHIP	33uF	20%	4V
C317	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C318	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C321	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C322	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C328	1-164-346-11	CERAMIC CHIP	1uF		16V
C329	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C601	1-124-434-00	ELECT	220uF	20%	4V
C602	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C603	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C604	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
		< FILTER >			
CF1	1-527-870-00	FILTER			
CF2	1-567-097-61	FILTER, CERAMIC			
		< CONNECTOR >			
CN301	1-569-252-21	HOUSING, CONNECTOR (FPC) 5P			
		< BAND PASS FILTER >			
CP1	1-236-711-21	FILTER, BAND PASS (E) (Board suffix -11)			
		< VARIABLE CAPACITOR >			
CV1	1-151-629-31	CAP, VAR, POLYETHYLENE (TUNING)			

MAIN

Ref. No.	Part No.	Description			Remark
		< IC >			
IC1	8-759-230-39	IC TA8122AF			
IC301	8-759-257-22	IC LA4582CM			
IC601	8-759-166-43	IC MM1038BFF-T1			
		< JACK >			
J301	1-750-061-11	JACK, DC (POLARITY UNIFIED TYPE) (DC IN 3V)			
J302	1-565-287-11	JACK (Ω)			
		< JUMPER RESISTOR >			
JR1	1-216-295-91	METAL GLAZE	0	5%	1/10W (US, Canadian)
JR2	1-216-295-91	METAL GLAZE	0	5%	1/10W (E)
JR3	1-216-295-91	METAL GLAZE	0	5%	1/10W (E)
JR5	1-216-295-91	METAL GLAZE	0	5%	1/10W (US, Canadian) (Board suffix -12)
		< COIL >			
L1	X-3368-118-1	ANTENNA SUB ASSY, BAR			
L2	1-460-120-11	COIL (WITH CORE) (FM RF)			
L3	1-403-696-11	COIL (WITH CORE) (FM OSC)			
L4	1-406-408-11	COIL (AM OSC)			
L5	1-412-006-31	INDUCTOR CHIP	10uH		
L6	1-412-006-31	INDUCTOR CHIP	10uH		
L101	1-410-999-11	INDUCTOR CHIP	3.3uH		
L201	1-410-999-11	INDUCTOR CHIP	3.3uH		
L301	1-410-999-11	INDUCTOR CHIP	3.3uH		
		< TRANSISTOR >			
Q1	8-729-403-17	TRANSISTOR	XN1215		
Q2	8-729-216-22	TRANSISTOR	2SA1162-G		
Q101	8-729-207-65	TRANSISTOR	RN1410		
Q201	8-729-207-65	TRANSISTOR	RN1410		
Q301	8-729-402-13	TRANSISTOR	XN1501		
		< RESISTOR >			
R1	1-216-009-00	METAL GLAZE	22	5%	1/10W
R2	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R3	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R4	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R5	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R6	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R7	1-216-037-00	METAL GLAZE	330	5%	1/10W
R101	1-216-689-11	METAL GLAZE	39K	0.5%	1/10W
R102	1-216-689-11	METAL GLAZE	39K	0.5%	1/10W
R103	1-216-079-00	METAL GLAZE	18K	5%	1/10W
R104	1-216-075-00	METAL GLAZE	12K	5%	1/10W
R105	1-216-117-00	METAL GLAZE	680K	5%	1/10W
R106	1-216-043-00	METAL GLAZE	560	5%	1/10W
R107	1-216-295-91	METAL GLAZE	0	5%	1/10W (US, Canadian)
R107	1-216-313-00	METAL GLAZE	8.2	5%	1/10W (E)
R108	1-216-295-00	METAL GLAZE	0	5%	1/10W (Board suffix -11)
R109	1-216-107-00	METAL GLAZE	270K	5%	1/10W (US, Canadian)
R109	1-216-095-00	METAL GLAZE	82K	5%	1/10W (E)
R201	1-216-689-11	METAL GLAZE	39K	0.5%	1/10W
R202	1-216-689-11	METAL GLAZE	39K	0.5%	1/10W
R203	1-216-079-00	METAL GLAZE	18K	5%	1/10W
R204	1-216-075-00	METAL GLAZE	12K	5%	1/10W
R205	1-216-117-00	METAL GLAZE	680K	5%	1/10W
R206	1-216-043-00	METAL GLAZE	560	5%	1/10W
R207	1-216-295-91	METAL GLAZE	0	5%	1/10W (US, Canadian)
R207	1-216-313-00	METAL GLAZE	8.2	5%	1/10W (E)
R208	1-216-295-00	METAL GLAZE	0	5%	1/10W (Board suffix -11)
R209	1-216-107-00	METAL GLAZE	270K	5%	1/10W (US, Canadian)
R209	1-216-095-00	METAL GLAZE	82K	5%	1/10W (E)
R304	1-216-112-00	METAL GLAZE	430K	5%	1/10W (US, Canadian)
R304	1-216-105-00	METAL GLAZE	220K	5%	1/10W (E)
R306	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R308	1-216-079-00	METAL GLAZE	18K	5%	1/10W
R309	1-216-112-00	METAL GLAZE	430K	5%	1/10W
R320	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R321	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R601	1-219-163-11	METAL GLAZE	1.1	5%	1/10W
R602	1-216-304-11	METAL GLAZE	3.3	5%	1/10W
R603	1-216-046-00	METAL GLAZE	750	5%	1/10W
		< VARIABLE RESISTOR >			
RV301	1-223-610-11	RES, VAR, CARBON 10K/10K (VOLUME ◢)			
RV601	1-241-028-11	RES, ADJ, CARBON 330			
		< SWITCH >			
S301	1-571-986-31	SWITCH, LEAF (FWD/REV)			
S302	1-571-986-11	SWITCH, LEAF (POWER)			
S303	1-692-298-12	SWITCH, SLIDE (TAPE/SENS)			
S304	1-692-299-11	SWITCH, SLIDE (FM/AM/TAPE)			
S305	1-692-898-11	SWITCH, SLIDE (AVLS)			

Ref. No.	Part No.	Description	Remark
		< TRANSFORMER >	
T1	1-404-949-11	TRANSFORMER, IF (AM IF)	
		< THERMISTOR >	
TH601	1-809-279-11	THERMISTOR, POSITIVE	
TH602	1-809-029-11	THERMISTOR, POSITIVE	
		< VIBRATOR >	
X1	1-577-091-21	OSCILLATOR, CRYSTAL (19kHz)	
X2	1-567-097-61	FILTER, CERAMIC (10.7MHz)	
**********			
		MISCELLANEOUS	
		************	
HP901	1-543-705-11	HEAD, MAGNETIC (PLAYBACK)	
L1	X-3368-118-1	ANTENNA SUB ASSY, BAR	
M901	1-698-353-11	MOTOR, DC	
**********			
		ACCESSORIES & PACKING MATERIALS	
		******************************	
	1-504-228-11	HEADPHONE (MDR-013) (US, Canadian)	
	3-346-518-01	CLIP, BELT	
	3-758-257-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH, GERMAN, DUTCH, SWEDISH, ITALIAN, PORTUGUESE) (Canadian, E)	
	3-758-257-21	MANUAL, INSTRUCTION (ENGLISH) (US)	
	3-758-257-61	MANUAL, INSTRUCTION (ENGLISH, CHINESE) (E)	
*	3-910-260-01	CUSHION (UPPER) (US, Canadian)	
*	3-910-261-01	CUSHION (LOWER) (US, Canadian)	
*	3-910-312-01	CUSHION (E)	
*	3-917-698-01	INDIVIDUAL CARTON (E)	
	8-953-538-90	HEADPHONE MDR-E741//K SET (E)	

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WM-FX301

SONY

SERVICE MANUAL

US Model
Canadian Model
E Model
Australian Model

SUPPLEMENT-2

File this supplement with the service manual.

Subject : 1. Addition to the Australian model
2. BOARD change

(ECN-WM500204/WM500209)

1. Addition to the Australian model

As for Australian model, refer to E model.
Refer to the following "Difference Table" for differences.
(The electrical parts is shown in the 2. BOARD change, so please refer it.)

Australian model

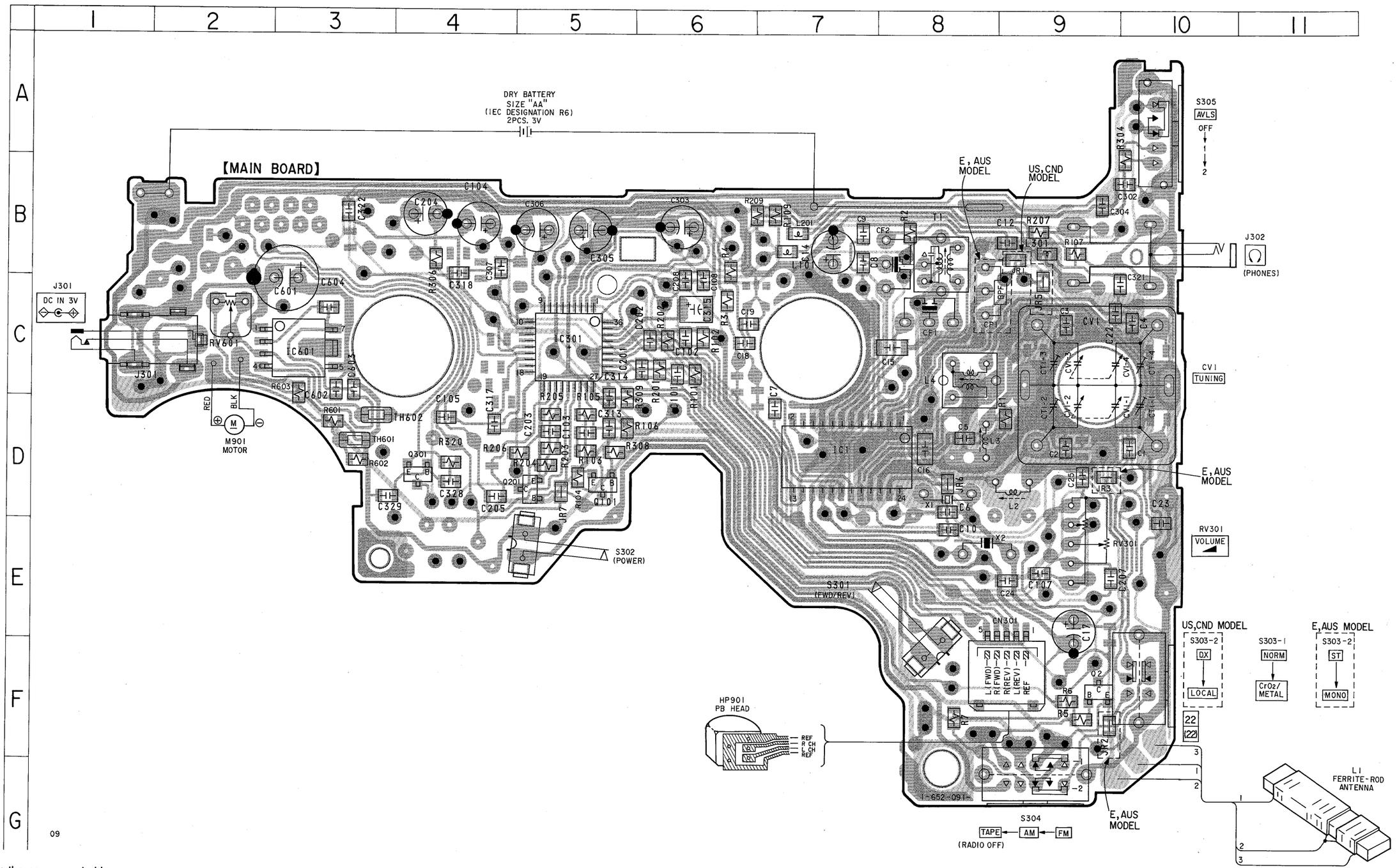
Page	E Model			Australian Model		
	Ref. No	Part No	Description	Ref. No	Part No	Description
20	8	A-3016-627-A	MAIN BOARD, COMPLETE	8	A-3016-716-A	MAIN BOARD, COMPLETE
		8-953-538-90	HEADPHONE MDR-E741//K SET		1-504-228-11	HEADPHONE (MDR-013)
		3-758-257-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH, GERMAN, DUTCH, SWEDISH, ITALIAN, PORTUGUESE)			
		————	————		3-758-257-21	MANUAL, INSTRUCTION (ENGLISH)
24		3-758-257-61	MANUAL, INSTRUCTION (ENGLISH, CHINESE)		————	————
		————	————	*	3-910-260-01	CUSHION (UPPER)
		————	————	*	3-910-261-01	CUSHION (LOWER)
	*	3-910-312-01	CUSHION		————	————
	*	3-917-698-01	INDIVIDUAL CARTON		————	————

2. BOARD change

PRINTED WIRING BOARD

- **Semiconductor Location**

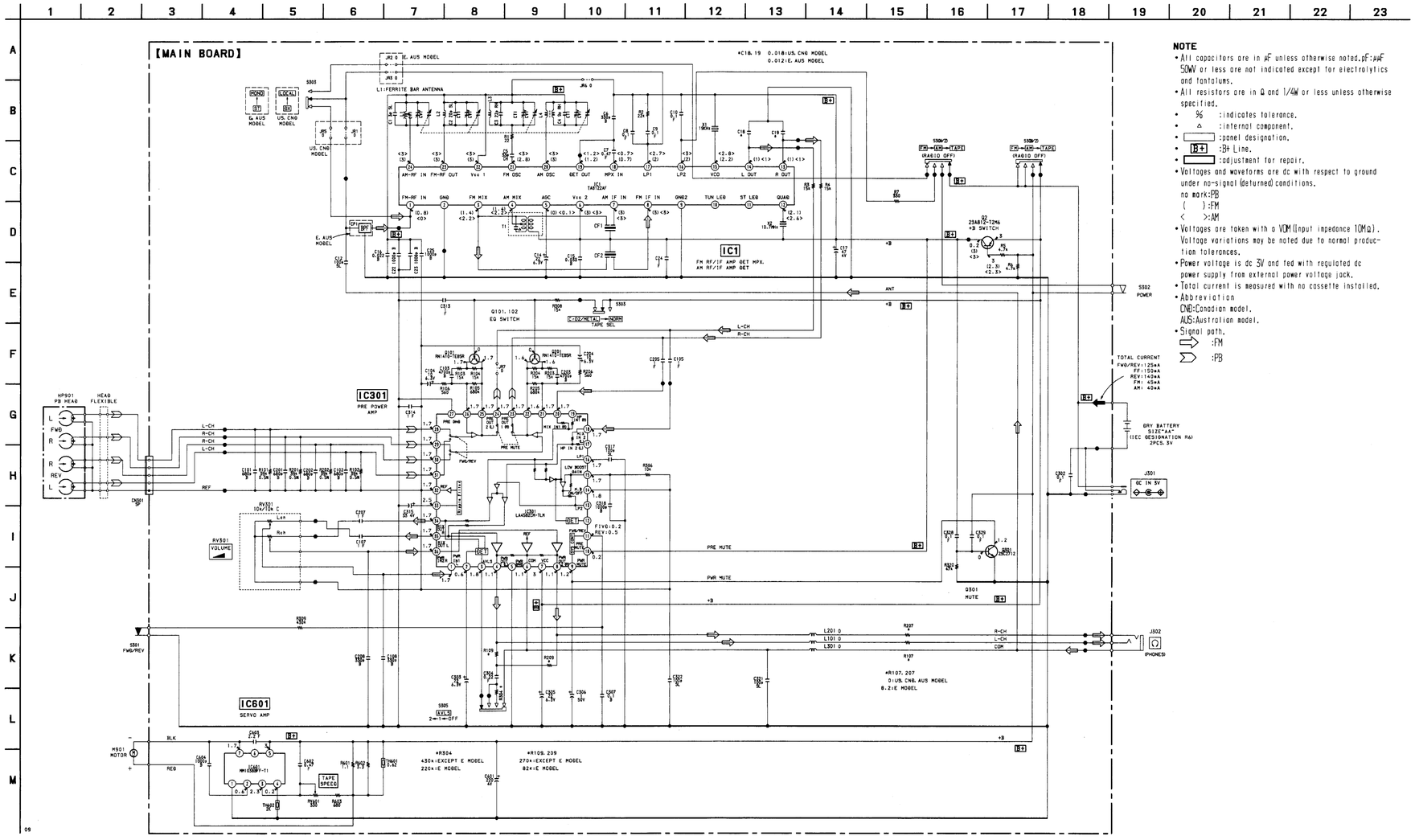
Ref. No.	Location
IC1	D-7
IC301	C-5
IC601	C-3
Q2	F-9
Q101	D-5
Q201	D-5
Q301	D-4



Note:

- ○—— : parts extracted from the component side.
- —— : parts extracted from the conductor side.
- ● : Through hole.
- △ : internal component.
- ▒▒ : Pattern from the side which enable seeing.
- ▒▒ : Pattern of the rear side.
- Abbreviation
  CND : Canadian model.
  AUS : Australian model.

SCHEMATIC DIAGRAM

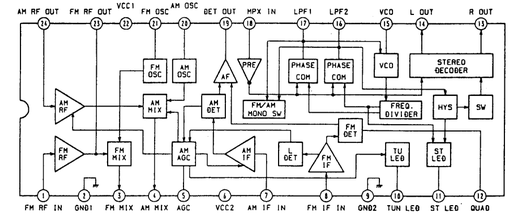


NOTE

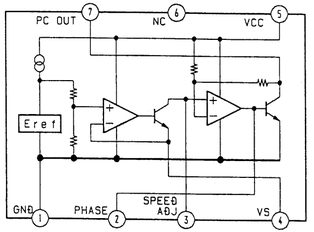
- All capacitors are in μF unless otherwise noted. pF: μF
  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- % : indicates tolerance.
- △ : internal component.
- ▭ : panel designation.
- B+ : B+ Line.
- ▭ : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal (deturned) conditions.
  no mark: PB
  ( ) : FM
  < > : AM
- Voltages are taken with a VOM (input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Power voltage is dc 3V and fed with regulated dc power supply from external power voltage jack.
- Total current is measured with no cassette installed.
- Abbreviation
  CND: Canadian model.
  AUS: Australian model.
- Signal path.
  ⇨ : FM
  ⇨ : PB

• IC Block Diagrams

IC1 TA8122AF



IC601 MM1038BFF



MAIN

ELECTRICAL PARTS LIST

NOTE:

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
- SEMICONDUCTORS
  In each case, u: μ , for example:
  uA...: μA..., uPA...: μPA..., uPB...: μPB..., uPC...: μPC..., uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH
- Abbreviation
  CND : Canadian model
  AUS : Australian model

Ref. No.	Part No.	Description			Remark
	A-3016-562-A	MAIN BOARD, COMPLETE (US, CND)			
		**********			
	A-3016-627-A	MAIN BOARD, COMPLETE (E)			
		**********			
	A-3016-716-A	MAIN BOARD, COMPLETE (AUS)			
		**********			
	3-910-894-01	TERMINAL (+), BATTERY			
	3-910-897-01	GEAR (TUNE)			
	3-910-909-01	TERMINAL (-), BATTERY			
	3-910-911-01	POINTER			
	3-910-923-01	KNOB (TUNE)			
	3-910-923-11	KNOB (TUNE)			
*	3-910-925-01	CHASSIS, ANTENNA			
		< CAPACITOR >			
C1	1-163-086-00	CERAMIC CHIP	3PF	50V	
C2	1-163-100-00	CERAMIC CHIP	20PF 5%	50V	
C3	1-163-101-00	CERAMIC CHIP	22PF 5%	50V	
C4	1-163-092-00	CERAMIC CHIP	9PF 0.25PF	50V	
C5	1-163-239-11	CERAMIC CHIP	33PF 5%	50V	
C6	1-163-003-11	CERAMIC CHIP	330PF 10%	50V	
C7	1-164-005-11	CERAMIC CHIP	0.47uF	25V	
C8	1-163-038-91	CERAMIC CHIP	0.1uF	25V	
C9	1-163-038-91	CERAMIC CHIP	0.1uF	25V	
C10	1-163-038-91	CERAMIC CHIP	0.1uF	25V	
C12	1-163-117-00	CERAMIC CHIP	100PF 5%	50V	
C14	1-126-153-11	ELECT	22uF 20%	6.3V	
C15	1-163-078-11	CERAMIC CHIP	0.033uF 10%	25V	
C16	1-163-063-91	CERAMIC CHIP	0.022uF 10%	50V	
C17	1-126-154-11	ELECT	47uF 20%	6.3V	
C18	1-163-022-00	CERAMIC CHIP	0.012uF 10%	50V(E, AUS)	
C18	1-163-024-00	CERAMIC CHIP	0.018uF 10%	50V(US, CND)	
C19	1-163-022-00	CERAMIC CHIP	0.012uF 10%	50V(E, AUS)	
C19	1-163-024-00	CERAMIC CHIP	0.018uF 10%	50V(US, CND)	
C22	1-163-009-11	CERAMIC CHIP	0.001uF 10%	50V	
C23	1-163-009-11	CERAMIC CHIP	0.001uF 10%	50V	
C24	1-164-234-11	CERAMIC CHIP	1uF	10V	
C25	1-163-009-11	CERAMIC CHIP	0.001uF 10%	50V	
C101	1-163-007-11	CERAMIC CHIP	680PF 10%	50V	
C102	1-163-007-11	CERAMIC CHIP	680PF 10%	50V	
C103	1-163-017-00	CERAMIC CHIP	0.0047uF 5%	50V	
C104	1-126-157-11	ELECT	10uF 20%	16V	
C105	1-164-234-11	CERAMIC CHIP	1uF	10V	
C107	1-164-234-11	CERAMIC CHIP	1uF	10V	
C108	1-163-003-11	CERAMIC CHIP	330PF 10%	50V	
C201	1-163-007-11	CERAMIC CHIP	680PF 10%	50V	
C202	1-163-007-11	CERAMIC CHIP	680PF 10%	50V	
C203	1-163-017-00	CERAMIC CHIP	0.0047uF 5%	50V	
C204	1-126-157-11	ELECT	10uF 20%	16V	
C205	1-164-234-11	CERAMIC CHIP	1uF	10V	
C207	1-164-234-11	CERAMIC CHIP	1uF	10V	
C208	1-163-003-11	CERAMIC CHIP	330PF 10%	50V	
C302	1-163-038-91	CERAMIC CHIP	0.1uF	25V	
C303	1-126-153-11	ELECT	22uF 20%	6.3V	
C304	1-164-222-11	CERAMIC CHIP	0.22uF	25V	
C305	1-126-153-11	ELECT	22uF 20%	6.3V	
C306	1-126-160-11	ELECT	1uF 20%	50V	
C307	1-164-004-11	CERAMIC CHIP	0.1uF 10%	25V	
C313	1-164-234-11	CERAMIC CHIP	1uF	10V	
C314	1-164-234-11	CERAMIC CHIP	1uF	10V	
C315	1-135-318-11	TANTAL. CHIP	33uF 20%	4V	
C317	1-163-117-00	CERAMIC CHIP	100PF 5%	50V	
C318	1-163-009-11	CERAMIC CHIP	0.001uF 10%	50V	
C321	1-163-117-00	CERAMIC CHIP	100PF 5%	50V	
C322	1-163-117-00	CERAMIC CHIP	100PF 5%	50V	
C328	1-164-234-11	CERAMIC CHIP	1uF	10V	
C329	1-163-038-91	CERAMIC CHIP	0.1uF	25V	
C601	1-124-434-00	ELECT	220uF 20%	4V	
C602	1-164-005-11	CERAMIC CHIP	0.47uF	25V	
C603	1-164-505-11	CERAMIC CHIP	2.2uF	16V	
C604	1-163-009-11	CERAMIC CHIP	0.001uF 10%	50V	
		< FILTER >			
CF1	1-527-870-00	FILTER			
CF2	1-567-097-61	FILTER, CERAMIC			
		< CONNECTOR >			
CN301	1-569-252-21	HOUSING, CONNECTOR (FPC) 5P			
		< COMPOSITION CIRCUIT BLOCK >			
CP1	1-236-711-21	FILTER, BAND PASS (E, AUS)			

Ref. No.	Part No.	Description	Remark
		< VARIABLE CAPACITOR >	
CV1	1-151-629-31	CAP, VAR, POLYETHYLENE (ANTENNA)	
		< IC >	
IC1	8-759-230-39	IC TA8122AF	
IC301	8-759-285-29	IC LA4582CM-TLM	
IC601	8-759-166-43	IC MM1038BFF	
		< JACK >	
J301	1-750-061-11	JACK, DC (POLARITY UNIFIED TYPE) (DC IN 3V)	
J302	1-565-287-11	JACK (∩)	
		< JUMPER RESISTOR >	
JR1	1-216-295-00	CONDUCTOR, CHIP 0 5% 1/10W	(US, CND)
JR2	1-216-295-00	CONDUCTOR, CHIP 0 5% 1/10W	(E, AUS)
JR3	1-216-295-00	CONDUCTOR, CHIP 0 5% 1/10W	(E, AUS)
JR5	1-216-295-00	CONDUCTOR, CHIP 0 5% 1/10W	(US, CND)
JR6	1-216-295-00	CONDUCTOR, CHIP 0 5% 1/10W	
JR7	1-216-295-00	CONDUCTOR, CHIP 0 5% 1/10W	
		< COIL >	
L1	X-3368-118-1	ANTENNA SUB ASSY	
L2	1-460-120-11	COIL (WITH CORE)	
L3	1-403-696-11	COIL (WITH CORE)	
L4	1-406-408-11	COIL (OSC)	
L101	1-414-135-11	INDUCTOR CHIP 0uH	
L201	1-414-135-11	INDUCTOR CHIP 0uH	
L301	1-414-135-11	INDUCTOR CHIP 0uH	
		< TRANSISTOR >	
Q2	8-729-216-22	TRANSISTOR 2SA1162-G	
Q101	8-729-207-65	TRANSISTOR RN1410	
Q201	8-729-207-65	TRANSISTOR RN1410	
Q301	8-729-230-49	TRANSISTOR 2SC2712-YG	
		< RESISTOR >	
R1	1-216-009-00	METAL CHIP 22 5% 1/10W	
R2	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R3	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R4	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R5	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R6	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R7	1-216-037-00	METAL CHIP 330 5% 1/10W	
R101	1-216-689-11	METAL CHIP 39K 0.5% 1/10W	
R102	1-216-689-11	METAL CHIP 39K 0.5% 1/10W	
R103	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R104	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R105	1-216-117-00	METAL CHIP 680K 5% 1/10W	
R106	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R107	1-216-295-00	CONDUCTOR, CHIP 0 5% 1/10W	(US, CND, AUS)
R107	1-216-313-00	METAL CHIP 8.2 5% 1/10W	(E)
R109	1-216-095-00	METAL CHIP 82K 5% 1/10W	(E)
R109	1-216-107-00	METAL CHIP 270K 5% 1/10W	(US, CND, AUS)
R201	1-216-689-11	METAL CHIP 39K 0.5% 1/10W	
R202	1-216-689-11	METAL CHIP 39K 0.5% 1/10W	
R203	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R204	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R205	1-216-117-00	METAL CHIP 680K 5% 1/10W	
R206	1-216-043-91	METAL GLAZE 560 5% 1/10W	
R207	1-216-295-00	CONDUCTOR, CHIP 0 5% 1/10W	(US, CND, AUS)
R207	1-216-313-00	METAL CHIP 8.2 5% 1/10W	(E)
R209	1-216-095-00	METAL CHIP 82K 5% 1/10W	(E)
R209	1-216-107-00	METAL CHIP 270K 5% 1/10W	(US, CND, AUS)
R304	1-216-105-91	METAL GLAZE 220K 5% 1/10W	(E)
R304	1-216-112-00	METAL GLAZE 430K 5% 1/10W	(US, CND, AUS)
R306	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R308	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R309	1-216-112-00	METAL GLAZE 430K 5% 1/10W	
R320	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R601	1-219-163-11	METAL GLAZE 1.1 5% 1/10W	
R602	1-216-304-11	METAL CHIP 3.3 5% 1/10W	
R603	1-216-045-00	METAL CHIP 680 5% 1/10W	
		< VARIABLE RESISTOR >	
RV301	1-223-609-21	RES, VAR, CARBON 10K/10K (VOLUME ◢)	
RV601	1-241-028-11	RES, ADJ, CARBON 330	
		< SWITCH >	
S301	1-571-986-31	SWITCH, LEAF (FWD/REV)	
S302	1-571-986-11	SWITCH, LEAF (POWER)	
S303	1-692-298-11	SWITCH, SLIDE (TAPE SEL)	
S304	1-692-299-11	SWITCH, SLIDE (FM, AM, TAPE)	
S305	1-692-898-11	SWITCH, SLIDE (AVLS)	
		< TRANSFORMER >	
T1	1-404-949-11	TRANSFORMER, IF	
		< THERMISTOR >	
TH601	1-809-279-11	THERMISTOR, POSITIVE 0.62	
TH602	1-810-764-11	THERMISTOR, POSITIVE 2K	
		< VIBRATOR >	
X1	1-577-091-21	OSCILLATOR, CRYSTAL (19kHz)	
X2	1-567-097-61	FILTER, CERAMIC (10.7MHz)	

Ref. No.	Part No.	Description	Remark
**********			
		MISCELLANEOUS	
		**********	
HP901	1-543-705-11	HEAD, MAGNETIC (PLAYBACK)	
L1	X-3368-118-1	ANTENNA SUB ASSY, BAR	
M901	1-698-353-11	MOTOR, DC	

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